

Coral Reef Fish Spawning Aggregations

M. Nemeth & M. Schärer

Spawning Aggregations

- **Sexual Reproduction mechanism**
- **Fish and invertebrates**
- **Occur monthly or annually**
- **Linked to lunar cycles**
- **Site specific**
- **Predictable**
- **Vulnerable to overfishing**
- **Most have disappeared**

Types of Aggregations

- **Resident aggregations**
 - Individuals are drawn from a relatively small, local area and the spawning site can be reached within a few hours or less.
- **Transient aggregations**
 - Individuals migrate long distances to a spawning site.

Management Options

- **Seasonal Closures**
- **Area Closures**
- **Season & Area Closures**
- **Fully protected MPAs**

Aim of this study

- Determine the status of SPAGs
 - Gather information on the occurrence of SPAGs at Mona Island
 - Verify the existence of SPAGs
 - Provide a basis for the monitoring of SPAGs

Meth

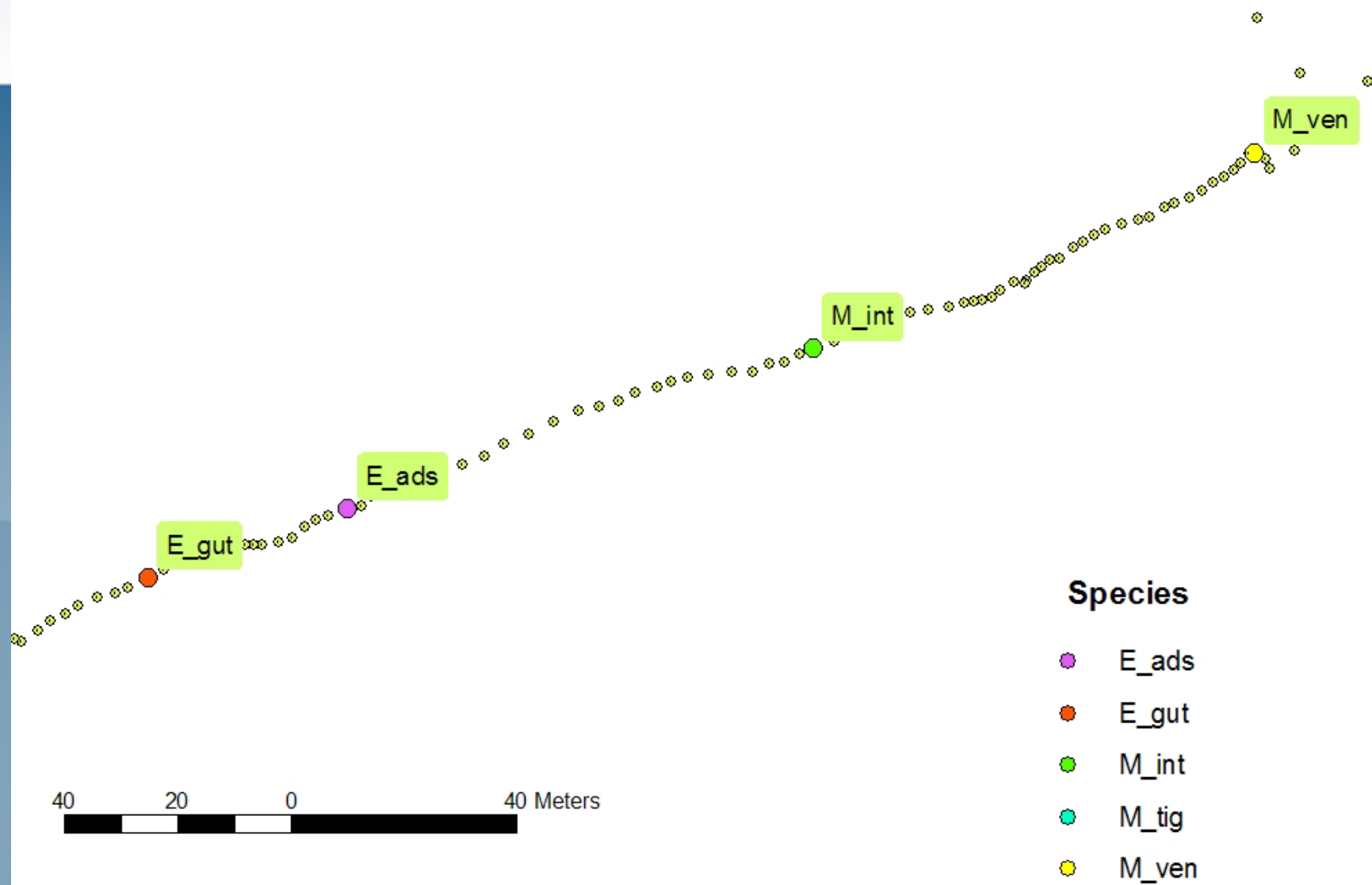
- Interviews with commercial
- Need to cover vast area
- Limited Resources. days



calculated later with GIS)

Method

- Searching Underwater
 - Time at start, end & each sighting
 - Depth at each sighting
 - Estimated size (Fork Length cm)
 - Habitat (Substratum & dominant sessile org.)
 - Maximum vertical relief (<3m around fish)

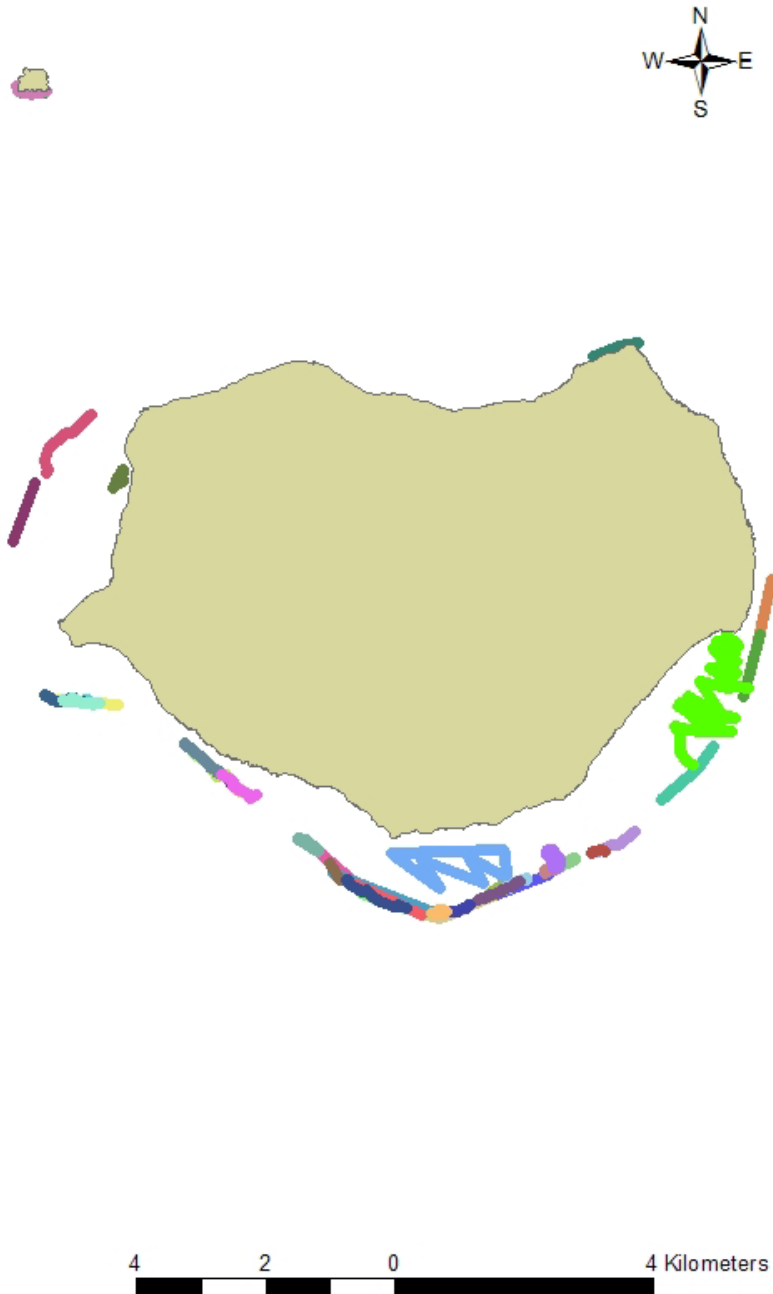


Interviews

- 10 Fishermen with +30 yrs experience
- Species: Nassau grouper, other grouper and snapper spp.
- Confirmation: 3 witnessed aggregations
- Locations: 5m patch reef to 30m shelf edge
- Captures: 500-15,000 lbs. per 5-7 day trip
- Gears: Spearfishing, traps, hook & line
- Current occurrence: Probably not

Field Surveys

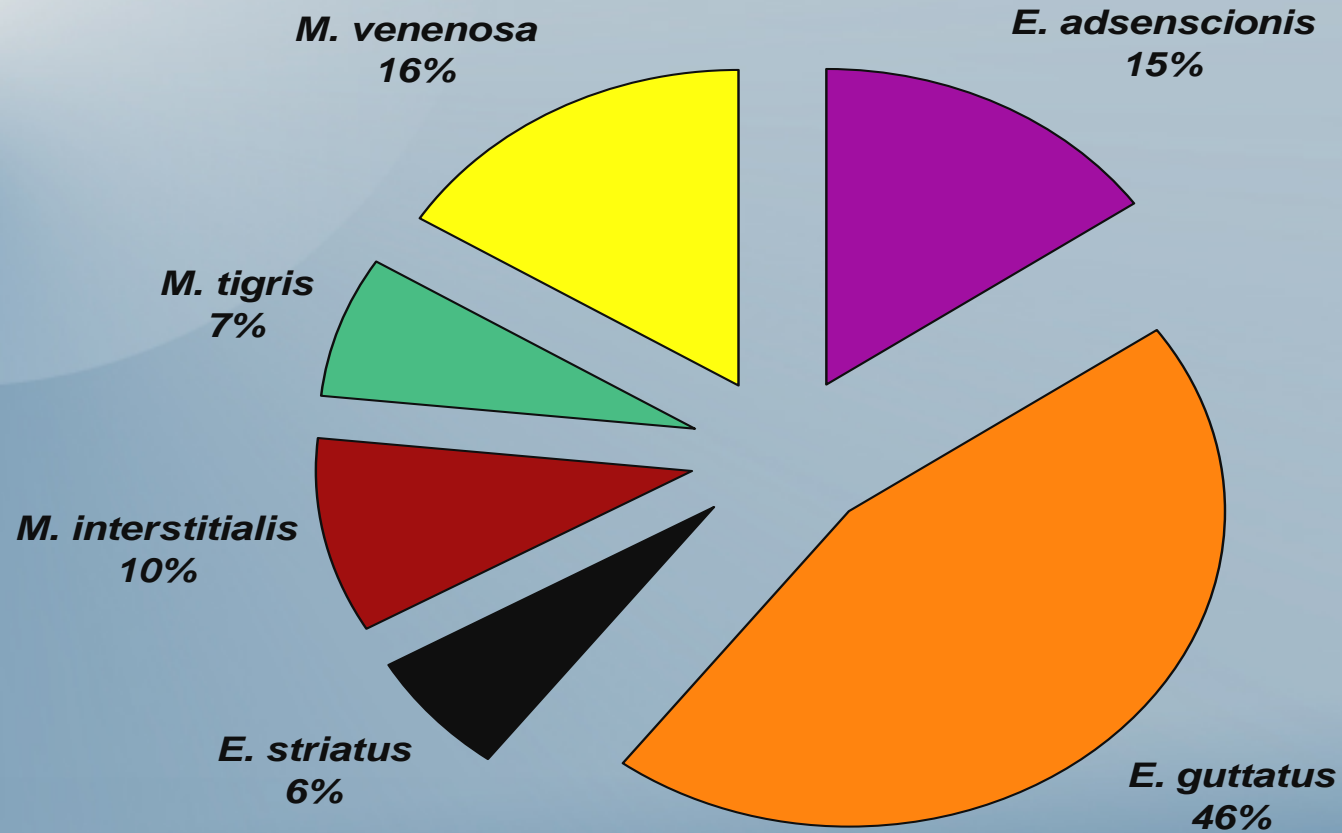
Field Trip	Year	Date start	Date end	Days	Full Moon	GPS track
1	2003	9-Dec-03	9-Dec-03	1	8-Dec-04	Nb
2	2004	7-Jan-04	9-Jan-04	3	7-Jan-04	Nb
3	2004	9-Feb-04	10-Feb-04	2	6-Feb-04	Nb
4	2004	27-Dec-04	30-Dec-04	4	26-Dec-04	Yes
5	2005	26-Jan-05	28-Jan-05	3	24-Jan-05	Yes



RESULTS

- **42 Transects**
 - Length mean = 757 m
 - Range 214 - 1723 m
- Depths surveyed 10 - 30 m
- Area Covered 0.33 km²
- 111 Large Grouper Observations
- 2 SPAGs observed

Species Proportions



1 SPAG Observed

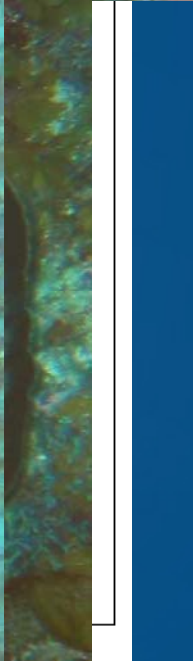
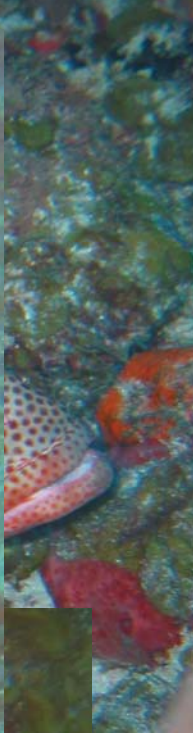
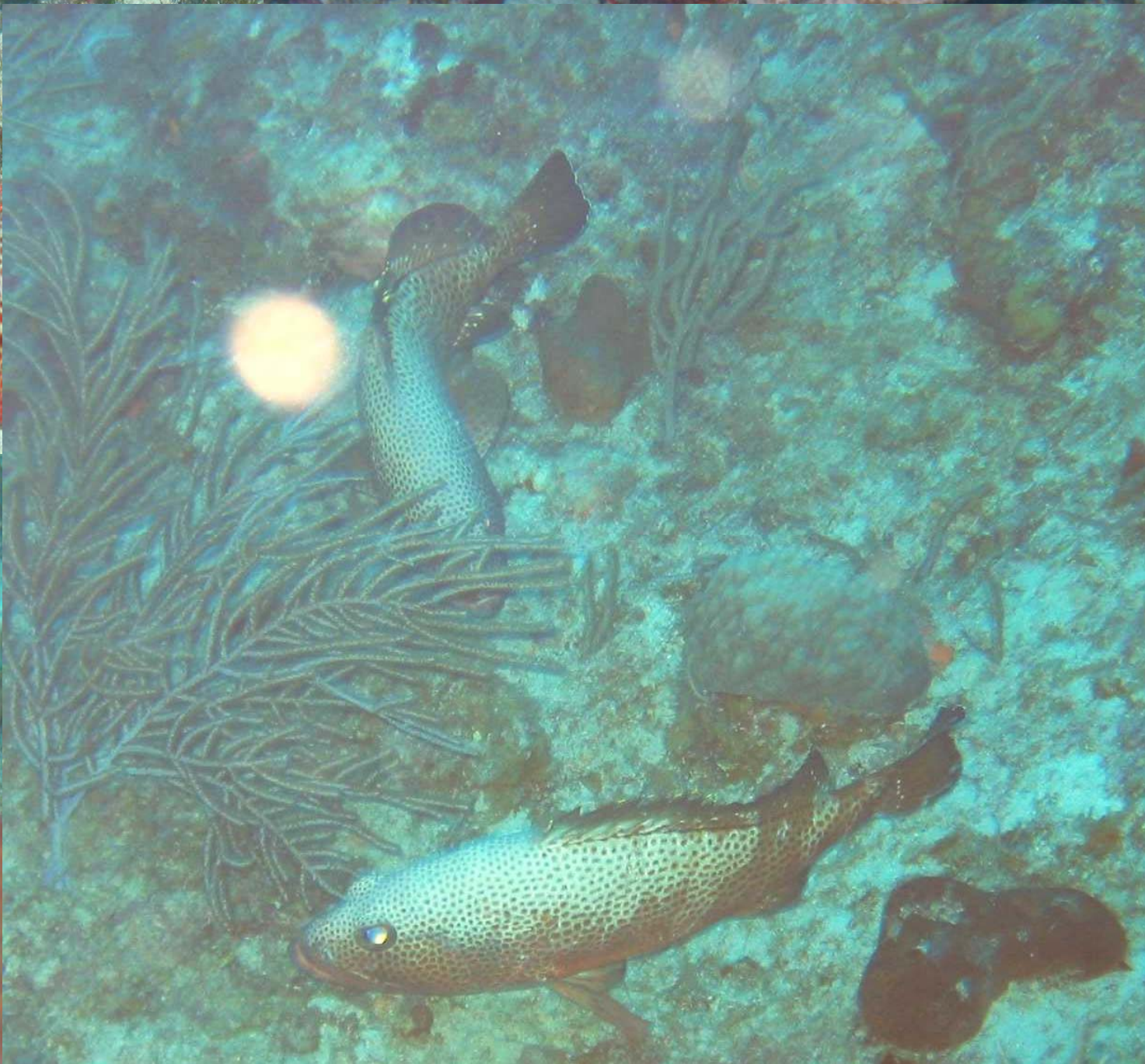
Yellowtailed parrotfish (a.k.a Redfin)

- *Sparisoma rubripinne*
 - 27 December, 2004
 - +1 after full moon
 - Late afternoon (17:30)
 - > 250 individuals (30-40 cm FL)
 - 35 Spawning rushes observed in 10 minutes

1 SPAG suspected

Red Hind (a.k.a. Cabrilla)

- *Epinephelus guttatus*
 - 27 and 28 January, 2005
 - +2 and +3 after full moon
 - Late afternoon (17:00 – 18:00)
 - >30 individuals (20-40 cm FL)
 - Distended abdomen & aggression between individual 'males' observed



100



Mycteroperca venenosa



Lutjanus jocu



Epinephelus striatus



Mycteroperca interstitialis

Mycteroperca tigris



Epinephelus adscensionis



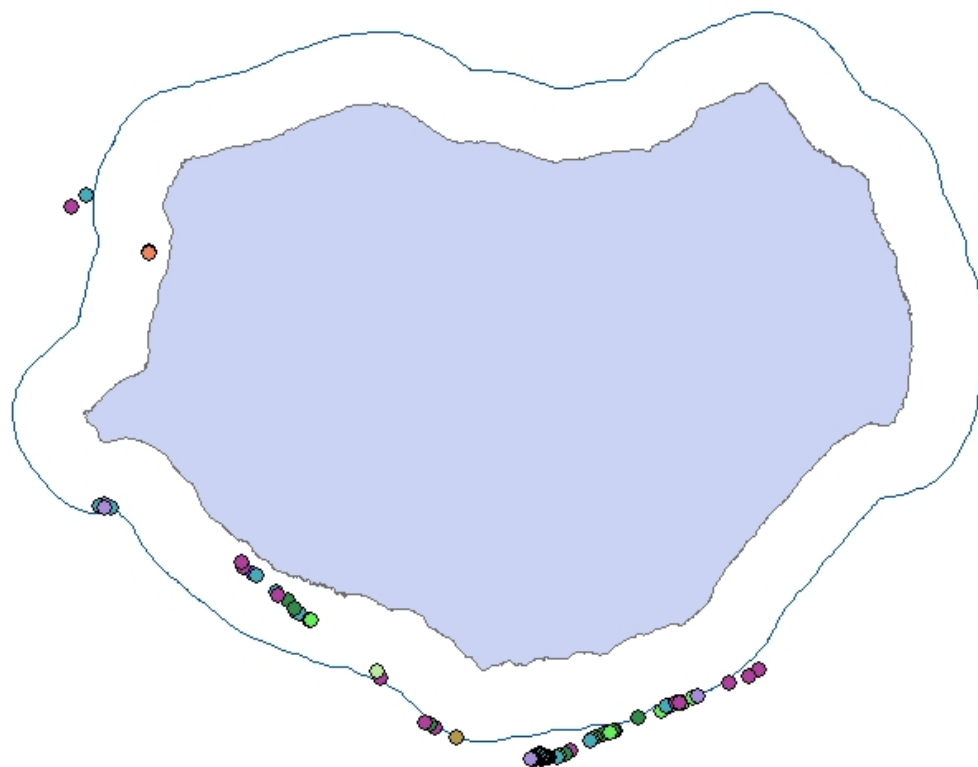


Species

Spp

- M_int
- E_ads
- E_gut
- E_str
- L_joc
- M_int
- M_tig
- M_ven
- S_gig
- S_rub

0.5 nautical mile



1 0.5 0 1 Kilometers

